Update on NOAA's National Weather Service (NWS)
WSR-88D Level II Data Collection and Distribution Network

Updated 29 March 2006

PURPOSE:
This summary updates Weather Surveillance Radar-1988 Doppler (WSR-88D) Level II data users, real-time and archive, on WSR-88D changes which may impact data format, data reliability, and data quality. Changes being made or planned with respect to the real-time Level II network are also presented.

CURRENT:
Open System Radar Data Acquisition (Open RDA): The installation of Open RDA systems is now in progress at a rate of five per week. The installation requires approximately 4 days of radar down time. Information on the Open RDA and the deployment schedule can be found at: http://www.orda.roc.noaa.gov/. The data produced by the Open RDA is good and the system has more sensitivity than the legacy RDA. See the "Planned Changes" section below for the immediate impact of Open RDA on Level II users.

New NWS-Maintained Level II Status Monitoring Site Available: The following web site provides the status of Level II data flow to the NWS Telecommunications Operations Center: http://weather.noaa.gov/monitor/radar2/. The site contains a color-coded display of sites on the Level II network by NWS region. The colors help the user differentiate between sites with just a Level II outage and sites with both Level II and III outages (implying the radar is inoperable). In addition, users can click on the site of interest and view any applicable Operator Notes/Recent Free Text Messages which provide more information on the radar's status. Information on apparent data latencies is also provided.

PLANNED CHANGES:
Level II Data Format Changes. As Open RDAs are installed, there are changes to the format of the Level II "metadata" file at the start of each volume coverage pattern and the time stamps will be Global Positioning Satellite (GPS) synchronized. [Note: The radar data message time stamps will be GPS synchronized. However, the Local Data Manager (LDM) keys, which also include time, will continue to come from the NTP synchronized with AWIPS. In a future software release, the LDM and other radar data time stamps may be synchronized with the Open RDA GPS clock.] The degree of impact from the Open RDA change will depend on how users process the Level II data. If a user just uses the base data radials: the floating point format of SYSCAL changed; azimuths are quasi-fixed on the half-degree; there are always 360 radials; and although the interface control document (ICD) did not change, the Open RDA may report the range to the first bin as a positive number (legacy was always negative). The "RDA Redundant Channel" byte in the message header that appears in every message header was changed to indicate if the RDA is legacy versus Open RDA. This field has traditionally been ignored since prior to the introduction of Open RDA, the channel byte was only used to indicate redundant channel number for FAA redundant systems. There are also several changes to other messages such as the RDA Status Message to: remove/add alarms and statuses; change the precision of the calibration correction; and to now report the software build of the ORDA. The Open Build 7.0/8 June 2005 version of the "Interface Control Document for the RDA/RPG" (Document Number 2620002c) is available at: http://www.roc.noaa.gov/ssb/cm/icd_downloads.asp. The format of Level II data from the KVWX,

Evansville, IN radar will not change since the Open RDA will not be installed on that system.

Additional Radar Connections. The list of sites on the network and to be added is listed at: http://www.roc.noaa.gov/NWS_Level_2/. No FAA Level II data can be added to the network until at least spring 2007 when the required software and hardware will be installed on the FAA WSR-88D systems. Adding DOD or FAA sites to the network depends on NWS requirements and availability of funding.

Build 8: Deployment of Radar Product Generator (RPG) Build 8 software has been rescheduled to begin on 1 May 2006. Non-redundant RDA sites will install Build 8 software on their RPG after the Open RDA has been installed in their WSR-88D. At redundant RDA sites (all FAA and 9 NWS sites) the Build 8 software will be loaded on the RPG when the Open RDA is installed. The primary change in this software release that will impact Level II users is the change in the default precipitation volume coverage pattern (VCP) from VCP 21. Beginning with Build 8, sites will be allowed to change the default precipitation VCP based on agreement by the local Unit Radar Committee. Some sites may elect to not change the default precipitation VCP while others may change the default precipitation VCP seasonally or on a case-by-case basis – all with the goal of maximizing the performance of the WSR-88D to support forecast and warning operations. Software to be added in Build 8 will enable the automatic return of the radar to clear air mode when a precipitation event has ended. (Currently, the switch to clear air mode requires manual intervention.) This software should reduce the bandwidth increase due to the change in default precipitation VCP.

ADDITIONAL INFORMATION:
Users who use CODE (Common Operations and Development Environment) to process level 2 data can update to Build 7, which is available at http://weather.gov/code88d/. The Build 8 software will be available about a month after the deployment of Build 8 software to operational sites begins the week of 1 May 2006.

The Radar Operations Center (ROC) has a URL (http://www.roc.noaa.gov/ops/ssm.asp) for users to obtain:

1. A list of sites and which RPG software build the site is using, and
2. A list of sites and which volume coverage pattern the site is using, during the last automated hourly ROC call to the RPG.

Additional information about the Level II network is available at:
http://www.roc.noaa.gov/NWS_Level_2/.